J. W. UNDERWOOD.

COAL-OIL STOVE.

No. 186,903. Patented Jan. 30, 1877.

Fig. 1

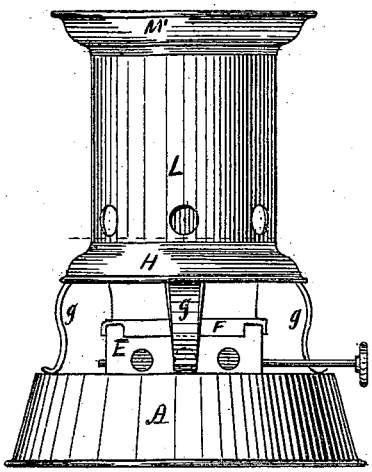


Fig. 2

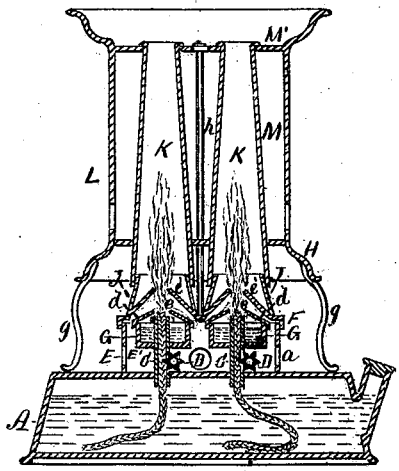


Fig. 3

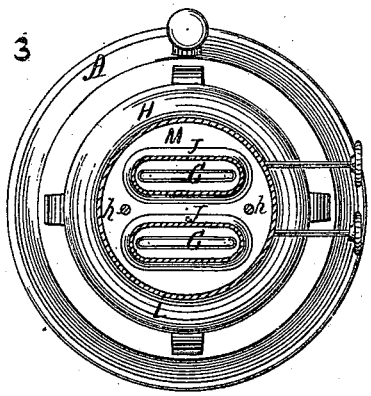
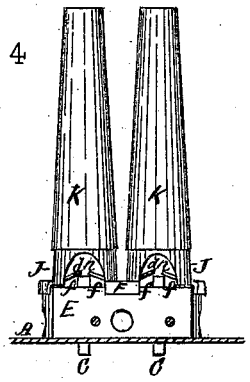


Fig. 4



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UNITED STATES PATENT OFFICE.

JONATHAN W. UNDERWOOD, OF AURORA, ILLINOIS.

IMPROVEMENT IN COAL-OIL STOVES.

Specification forming part of Letters Patent No. **186,903**, dated January 30, 1877; application filed July 24, 1876.

To all whom it may concern:

Be it known that I, JONATHAN W. UNDERWOOD, of Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Coal-Oil Stoves; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 represents a side elevation of a coal-oil stove embodying my invention. Fig. 2 represents a vertical central section of the same. Fig. 3 represents a sectional plan of the same, taken on the line *x x*, Fig. 1; and Fig. 4 represents a side elevation of the chimneys and burners detached.

Like letters of reference indicate like parts.

My invention relates to that class of coal-oil stoves used for culinary purposes; and the object of my invention is to simplify the construction of such stoves, and to so arrange the several parts thereof, with relation to each other, as to produce a more complete combustion.

To that end my invention consists in the combination and arrangement of the several parts of the stove, as is hereinafter described and claimed.

In the drawing, A represents the oil-reservoir, forming the base of the stove, which may be made as shown, or in any other suitable form. C C are the wick-tubes, which communicate with the interior of the reservoir, and extend upward therefrom, in the usual manner. D D are the ratchets for adjusting the wicks, which are arranged in the usual manner. E is a sheet-metal rim, which is permanently secured to the upper surface of the reservoir A, and extends upward nearly to the top of the wick-tubes, and so as to form an air-chamber, E′, surrounding the said tubes, and is provided with a series of apertures or perforations, *a*, through which air freely passes into said chamber E′. F is a cast-metal cap, which is loosely fitted upon the upper edge of the rim E, and is provided, at a point immediately over the respective wick-tubes, with deflecting-cones *e e*, through which the flames respectively pass. G G are sheet-metal receptacles, which are permanently attached to the wick-tubes above the ratchets D D, and so that the said tubes pass centrally through them, as shown. Each of said receptacles is provided with a cap, *d*, forming a supplemental deflecting-cone, through which the flame passes, and is so arranged relative to the cones *c c* as to form an air space, *e*, between them, and through which the air passes from the chamber E′ to supply the flame. The arrangement of the receptacles G G is such as to form a water-reservoir surrounding the upper portion of the wick-tubes, as shown in Fig. 2; and the angle of the supplemental cones or caps *d* is such as to cause their centers to extend upward above the plane of the upper edge of rim E, and so as to form inlets *f* at each end of the caps, through which air passes into the said reservoirs.

H is an annular cast-metal plate, which is permanently attached at its lower edge to the feet *g*, as shown in Fig. 2. The arrangement of said feet is such as to rest upon the oil-reservoir A, and so as to elevate the plate H above the cap F. J J are cast or sheet metal cones, which are permanently attached to the upper surface of the cap F, around the base of the respective deflecting-cones *c c*, and extend upward a short distance above the same. K K are the chimneys, which are made of any suitable sheet metal, and of the proper size at the base to fit snugly around the upper ends of the cones J J. L is a sheet-metal jacket, which is permanently attached at its lower end to the upper surface of plate H, and so as to surround the chimneys, and thereby forming an air-chamber, M, between its inner surface and the chimneys, as shown in Fig. 2. M′ is a cast-metal cap, upon which the cooking-vessels are supported, and is adjusted to rest upon the upper edge of the jacket, and is firmly secured thereto by bolts *h h*, passing through the same, and extending downward to and through the cap F, between the chimneys. The caps F and M′ are provided with apertures, formed through them in a vertical plane centrally over the wick-tubes, and through which apertures the chimneys pass.

The arrangement of the caps F and M′, jacket L, and the chimneys is such that when

the bolts *h h* are properly tightened the said several parts are firmly connected together, and so as to admit of being removed together from the wick-tubes when necessary to trim the wicks.

The cones J J are provided on each end with an opening, *n*, communicating with the air-space *e*, immediately under the deflecting-cones *c c*, the object of which is to aid in supplying the flame with oxygen, and to increase the volume of heated air passing upward through the chimneys, and also to admit of igniting the wicks without removing the cones J J and the parts united thereto from over the wick-tubes.

By arranging the caps *d* so as to form the air-inlets *f*, communicating with the interior of the water-reservoirs, the air is freely admitted into the said reservoirs, and intermingles with the steam generated by the downward radiation of the heat from the flame, and is carried upward through the opening in the cap to and in direct contact with the flame immediately at the point of combustion by the draft through the chimneys, thereby greatly increasing combustion, and consequently intensifying the heat.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the wick-tubes C C and water-reservoir G G, as described, of the deflecting-cones *c c* and caps *d d*, arranged to form the air-spaces *e*, substantially as and for the purpose specified.

2. The combination, with the chimneys K K, of the cones J J, provided at each end with the openings *n*, communicating with the air-spaces *e*, immediately under the deflecting-cones *c c*, respectively, substantially as and for the purpose specified.

3. The combination, with the wick-tubes C C, of the water-reservoirs G G, caps *d d*, covers J J, deflecting-cones *c c*, chimneys K K, caps F and M′, jacket L, and bolts *h h*, all united and arranged to operate together, as and for the purpose specified.

JONATHAN W. UNDERWOOD.

Witnesses:
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